University, and there made his presence as beneficially felt in the management of the institution as it was in that of the School. We may take this opportunity of noting that, as the result of his experience in such work, he wrote many papers on medical subjects in various publications, and that the honorary degree of M.D. was conferred upon him by the University of Bologna. He represented the University of Dublin on the General Medical Council, from 1878 to 1896, and took a prominent and useful part in the proceedings of that body. Dr. Haughton displayed remarkable versatility of intellect. The record of his scientific work is to be found principally in his numerous papers in the publications of various scientific societies, and in scientific periodicals. We may instance those of the Royal Society, the Royal Irish Academy, the Geological Society of London (of which he was a Fellow) and that of Ireland, the Royal Dublin Society, the *Cambridge and Dublin Mathematical Journal*, NATURE, the *Philosophical Magazine*, the *Natural History Review*, the *American Journal of Science*, the British Association, &c. Among the great variety of subjects treated we may mention his discussion and calculation of the tides in the Arctic seas from the observations of voyagers, and also of the tides round the coast of Ireland, founded upon observations made under the direction of the Royal Irish Academy. He paid much attention to the granites of Ireland. A favourite subject with him was animal mechanics. It might have been better for his future name, though perhaps not for science in general, if he had bestowed his powers more on the production of *treatises* on fewer subjects. His work on the "Principles of Animal Mechanics" (London, 1873) makes us feel this. That book was the outcome of observations, experiments, and calculation extending over several years. It includes results published in various papers on different parts of the subject, contributed to the Royal Society and the Royal Irish Academy, and in lectures delivered by him before the Royal Institution in London. The important "Principle of Least Action" is brought frequently into view in his discussion of various details of the vertebrate muscular economy. A complaint, which, however, is unavoidable in this case, has been brought against this book; viz. that many anatomists would not be able to follow the mathematics, and many mathematicians would not have sufficient command of the anatomical points, there presented. His "Lectures on Physical Geography," 1880, printed in the Dublin University Press Series, are marked by his usual power and originality. We shall only allude to his "Manual of Geology," and to the numerous books on elementary science written by him and Prof. Galbraith in conjunction, some of which have had a large circulation. Trinity College, Dublin, will long mourn the vacancy left by him as a gifted son, an able administrator, and an active participator in her work of teaching. The Royal Irish Academy will feel his loss to a very special degree. He joined that body in 1845, and contributed to it most of his principal scientific papers. The Academy presented to him its Cunningham Medal, in 1848, for his "Memoir on the Equilibrium and Motion of Solid and Fluid Bodies." He was for many years a most valued member of its Council, and was President of it from 1886 to 1891. We must not forget to mention that he was for just twenty years the efficient Secretary of the Royal Zoological Society of Ireland with its Zoological Gardens, at a time when the finances of the Society were in a less satisfactory condition than at present, and it is acknowledged that, on more than one occasion, he was the means of saving the Society from shipwreck by his energy and resource. It is very rarely indeed that we meet with a man of so remarkable an individuality, and endowed with such varied powers of working in both practical and scientific lines of usefulness. C.

NOTES.

AT a meeting of the general committee of the British Association recently held, Sir W. Crookes, F.R.S., was elected President for 1898. It was decided that the meeting in Bristol shall open on September 7, 1898.

THE Executive Committee of the International Congress of Zoology, which, as has already been announced, will be held at Cambridge in August next, has recently been appointed, and is composed as follows:—President, Sir John Lubbock; Vice-Presidents, the Vice-Chancellor of the University of Cambridge, Dr. W. T. Blanford, Sir W. H. Flower, the President of the Linnean Society, Prof. Ray Lankester, Prof. A. Newton, Dr. P. L. Sclater, the President of the Entomological Society, Sir William Turner, and Lord Walsingham; Treasurers, Prof. S. J. Hickson and Dr. Sclater; Secretaries, Prof. F. Jeffrey Bell, Mr. G. C. Bourne, and Mr. A. Sedgwick; Ordinary Members, Dr. Gadow, Mr. F. D. Godman, Lieut.-Colonel Godwin-Austen, Sir G. F. Hampson, Dr. S. F. Harmer, Prof. Howes, the Hon. W. Rothschild, Mr. H. Saunders, Prof. Seeley, Dr. D. Sharp, Mr. A. E. Shipley, Prof. C. Stewart, and Dr. H. Woodward. The official address of the Congress is, by the courtesy of the Zoological Society, 3 Hanover Square, London, W.

THE interesting ceremony took place on Monday afternoon last, at the Michael Faraday Board School, Faraday Street, Walworth, of unveiling a bust of Michael Faraday. The bust, which is of white marble, was presented to the school by the managers of the Royal Institution of Great Britain, and is a copy of the original bust executed by Matthew Noble. It stands upon a pedestal of Aberdeen granite four feet in height, and has been placed in the boys' hall of the school. On the wall immediately behind the bust a large brass tablet has been affixed, bearing the following inscription:—"Michael Faraday, natural philosopher, D.C.L., F.R.S., born at Newington, Surrey, September 22, 1791. He was a patient student, an eloquent expounder, and a brilliant illustrator of the laws of nature. Fullerian Professor of Chemistry in the Royal Institution of Great Britain, 1833 to 1867. Faraday's noblest monument is his 'Experimental Researches in Electricity and Magnetism' from 1831 to 1851. He died at Hampton Court Green, August 25, 1867, and was interred in Highgate Cemetery." Sir J. Crichton Browne, F.R.S., unveiled the bust, and expressed his pleasure at being permitted to unveil this statue of a great man who had spent a long life in unveiling the hidden mysteries of nature. He hoped the sight of that bust would be an inspiration to the children, and that they would learn who Faraday was and what he did. He suggested that one day every year should be set apart in the school in memory of Faraday, when some part of his work should be explained.

PROF. OLIVER LODGE will deliver the first of a course of six Christmas lectures (specially adapted to young people) on "The Principles of the Electric Telegraph," at the Royal Institution on December 28. The remaining lectures will be given on December 30, 1897, and January 1, 4, 6, 8, 1898.

THE Jubilee Medal has been presented to Sir Robert Ball, the President of the Royal Astronomical Society.

THE Copenhagen correspondent of the *Times* states that an expedition to the Pamir regions will be fitted out next year. Its object will be to make geographical and ethnographical explorations in the northern part of the Wakhan valley. The expedition will be under the leadership of Lieut. Olufsen, and will include two scientific experts. Its cost will be partly borne by the Danish Government out of the Carlsberg fund, and the explorers expect to be absent for two years.

Science announces that the Austrian steamship *Pola* has again gone to the Red Sea for scientific explorations, and will this year cover the ground between Dschedda and Aden. Dr. Franz Steindachner, the ichthyologist, has charge of the zoological work, and observations will also be made in physical oceanography.

The meeting of the American Psychological Association will be held this year at Cornell University, Ithaca, under the presidency of Prof. Baldwin, the sessions beginning on December 28.

According to the Allahabad *Pioneer Mail*, the Ceylon Survey Department is about to start on a cadastral survey of the Crown lands and lands of doubtful ownership in the island, on a scale of ten inches to the mile, and a topographical survey on a scale of one inch to the mile. It is estimated that the cadastral survey will occupy the ordinary staff for about twenty-five years. The triangulation and topographical survey, which will embrace the whole island, will, it is expected, be completed in five or six years. It is stated that at the present time there is no trustworthy map of Ceylon in existence; that there is no contour map of the island of any description, and that the present so-called map is a compilation from Colonel Fraser's map (now nearly 100 years old), and contains errors so numerous and gross as to make it useless. Hence the new surveys to which reference is made.

The Indian Section of the Pasteur International Memorial Fund has just forwarded a further contribution to the above of 17*l.* 3*s.* 6*d.*, bringing the total amount subscribed in India up to the handsome sum of 460*l.* In a letter to Prof. Percy Frankland, F.R.S., Surgeon Major-General Cleghorn mentions that "the original subscription list contains the names of a goodly number of natives who have subscribed small sums."

We are glad to notice that Surgeon-Major A. M. Davis is to be attached to the office of the Principal Medical Officer in India, as a tentative measure, for one year, for the purpose of carrying out bacteriological and sanitary investigations. We hope the office of bacteriologist and sanitary investigator will soon be a permanent one. It is also stated that the Madras Government has applied to the supreme Government for the appointment of a bacteriologist, and has received a sympathetic answer, the suggestion of the Government of India being that the present Professor of Hygiene at the Medical College should be appointed Professor of Bacteriology.

Further particulars of the arrangements for the forthcoming meeting of the Australasian Association have reached us. Sir James Hector, the president of the geographical section, has announced as the probable subject of his presidential address—"Submarine Geography," and that the title of his popular lecture will be "Antarctica and the Islands of the Far South." A lecture to working men will be given by Prof. Threlfall and Mr. J. A. Pollock, who will speak on "Electric Signalling without Wires." The following papers, in addition to those already noted in Nature, have been promised:—"On the Magnetic Force, at Right Angles to the Axis in the Interior of Solenoids," by C. Coleridge Farr; "The Work of High Level Stations in Australasia, with special reference to Mount Kosciusko and Mount Wellington," by Clement L Wragge; "Milk Analysis in its relation to the Butter and Cheese Industries," by H. W. Potts; "Suggestions for a New Classification of the Eucalyptus," by Prof. Ralph Tate; "On the Occurrence of *Eucalyptus pulverulenta* in Victoria," by A. W. Howitt; "Notes on the Flora of the Mallee Districts of Victoria," by St. Elroy D'Alton; "On the Growth of Galls and Gall Insects," by W. W. Froggatt; "Notes on the Disappearance of Native Races in general, and of Fijians in particular," by H. H. Thiele; "The Colour of Flowers, and its Influence on Bee Life," by Albert Gale; "Notes on the Wax of *Ceroplastes rubens*," and "On the Colouring Matter of *Eris cocci eucalypti*," by E. H. Gurney. A long list of excursions has been prepared, and at a recent meeting of the Council it was unanimously decided that scientific societies in other colonies should be invited to send non-resident delegates to the Sydney session; and that members of the British, American and foreign associations, non-resident in Australasia, who attend, should be admitted free.

The following science lectures will be delivered at the Imperial Institute on the dates mentioned:—On November 19, "Three Years in the Arctic," by Mr. F. G. Jackson; on November 22, "Electric Balloon Signalling applied to Scientific Exploration in Arctic and Antarctic Expeditions," by Mr. Eric Bruce; on November 29, "The Wild Kafirs of the Hindu Kush," by Sir G. S. Robertson; on December 6, "The Mineral Resources of British Columbia and the Yukon," by Mr. A. J. McMillan; on December 13, "Canada's Metals," by Prof. W. C. Roberts-Austen; on December 20, "The Petroleum Sources of the British Empire," by Mr. Boverton Redwood.

The International Congress on the Protection of Birds, opened at Aix-en-Provence on November 9, and arranged by the Ligue Ornithophile Française, of which M. Louis-Adrien Levat is the president, was concluded on Saturday last. The protection of insectivorous birds useful to agriculture was the chief matter discussed, and it was decided to forward to the Governments of Europe, through the French Minister of Foreign Affairs, the resolutions which were formulated. Public educational bodies are also to be approached in order to obtain, if possible, the serious consideration of this important subject by schoolmasters and Government school inspectors. Numerous French and Italian agricultural, horticultural, and sporting societies were represented at the Congress, and delegates from the Selborne Society and the Society for the Protection of Birds were also present.

The late Mr. W. Bolitho of Penzance, for thirty-five years treasurer of the Royal Geological Society of Cornwall, bequeathed 500*l.* to the trustees of that Society, the yearly income accruing from which was to be applied to the purchase of a gold medal, "to be called the William Bolitho Medal, to be awarded to such member of the said Society, whether Ordinary, Honorary, or Associate, whose attainments, labours, and discoveries in Geological or Mineralogical Science shall, in the opinion of the President and Council of the said Society, best deserve recognition." The first award of this medal was made in November, 1896, to Prof. Robert Etheridge, in recognition of "his age, his great attainments, and his life-long labours for the benefit of science." The second award was made on the 9th inst. to Mr. Howard Fox, of Falmouth, in recognition of his various discoveries in the field geology of Cornwall, and of his having brought to light the radiolarian beds of the south-west of England.

The *Electrical World* (New York) states that the National Museum at Washington has just been enriched by a very valuable and interesting collection, comprising the private papers of the late Mr. Cyrus W. Field relating to the laying of the first Atlantic cable, cable despatches first sent, objects with which Mr Field worked out the idea of laying the cable, and many other things of interest pertaining to the project. The correspondence and autograph copies of telegrams sent by Mr. Field to the President of the United States and other eminent persons are included. The globe, which was constructed in London, and on which Mr. Field traced the course of the cable to be laid from Newfoundland to Ireland, forms an attractive object of the collection. It is about 18 inches in diameter, on a stand, with a magnetic compass underneath, and shows many signs of hard usage. The journal kept by Mr. Field and notes of deep-sea soundings set down by him and officers of the *Great Eastern*, which laid the cable, are part of the collection. Mr. Field's private library, with all the literature relating to the work of laying the cable, forms another part. There are also copies of medals presented to Mr. Field by Congress and the French Government, engrossed resolutions passed by public bodies in the United States and in Europe, a cane from the wood of the *Great Eastern*, &c., as well as cases containing sections of the first Atlantic cable.

THE Paris correspondent of the *Times* gives particulars of the trial trip at Mantes of the electric locomotive devised by M. Heilmann. The train, which was composed of twelve carriages and a luggage van, and carried 250 persons, weighed about 150 tons. The object of the trip was not to make a trial of speed, and the train journeyed at the rate of only eighteen miles an hour; the experiment seems, however, to have been considered a great success, and testimony is borne to the ease and regularity of the movement of the train. Great things are hoped from this invention, no less than the conveying of a train weighing 300 tons at the speed of sixty-two miles an hour being looked forward to. The Heilmann engine draws a closed tender containing a steam engine of the Pilon pattern, which works the dynamos producing electricity. The motive power is transmitted directly to the eight wheels, which are only one metre five centimetres in diameter. The consumption of coal by the engine is less than that of an ordinary engine, so that the locomotive can go greater distances with fewer and shorter stops for replenishing coal and water. It will, of course, light up the carriages by electricity, and it is thought that the electric will supersede the air brake.

A LECTURE on "Microscopic Observations on Deterioration by Fatigue in Steel Rails," was given on Monday, the 8th inst., before the Sheffield Society of Engineers and Metallurgists, by Mr. Thomas Andrews, and is reported in the *Sheffield Daily Telegraph*, from which we give a condensed report as follows:—The earlier part of the lecture was occupied with the consideration of the external stress and disintegrating forces imposed on rails, and a large number of illustrations of the state of the wearing faces of rails which had endured the stress of wear for known periods and under known conditions of main line service were given. The gradual development of lines of transverse weakness, indicating the danger from minute cracks, and showing the influences of internal micro flaws in assisting the loss of strength due to vibratory stress were then traced. The effects also of varied chemical compositions on the physical properties and strength of steel rails were also considered, and illustrated by numerous micro-sections and micrographs. The lecturer referred to his recent researches on another serious cause of the loss of strength in rails arising from occasional segregation of the chemical constituents and impurities in steel rails, and offered suggestions for the prevention of this evil. He further referred to the light thrown on this question by recent microscopic researches on the structure of gold and other metallic alloys. The effects of the secondary crystallisation of iron recently observed by the lecturer were also illustrated. Reasoning from the results of his research on the microscopic structure, chemical composition, and physical structure of rails of satisfactory long life, Mr. Andrews indicated the conclusions he had arrived at as to the specification for modern rails best calculated to ensure durability and safety for main line services. The lecturer mentioned that he was still pursuing additional chemical, physical, and microscopical researches on the important question on the loss of strength in steel rails by reason of use, and expressed the hope that valuable results in the interests of the public safety would result.

AT a meeting of the Nottingham Naturalists' Society on November 9, the newly-elected president, the Rev. A. Thornley, delivered a thoughtful address on "The Work of a Natural History Society." In the opinion of the president, the functions of a Society such as theirs should embrace at least the following objects: instruction, stimulation, field-work, and protection. The speaker, in the course of his remarks, regretted that the study of entomology has up to the present been to a large extent neglected in the county of Nottingham, but stated there were signs of improvement in this direction, as during the past year their Coleoptera list had been largely augmented by the labours of several members of their Society.

THE so-called "fruit cure," although not much heard of in this country, is well recognised at various places on the continent, where so-called grape-cure stations have been established. In a recent number of *Modern Medicine and Bacteriological Review* there is an interesting article on the subject, in which the historical side of the question is dealt with. Thus we are told that many medical authorities in the tenth century become enthusiastic in their writings over the remarkable curative virtues of grapes, whilst a certain Van Swieten, of a more modern date, is said to have "recommended in special cases the eating of twenty pounds of strawberries a day." The same gentleman also reports a case of phthisis healed by strawberries, and cites cases in which maniacs have regained their reason by the exclusive use of cherries as food! These instances rather savour of the miraculous; but there is no doubt that the so-called grape-cure, for indigestion and other evils, is carried on in many places on the continent, and that people betake themselves to Meran, Vevey, Bingen, or to Italy and the South of France with the intention of devoting six weeks to the cure, during which time they are expected to have gradually accomplished the feat of consuming from three to eight pounds of grapes daily as the case may be. Grapes are said to exercise a salutary action on the nervous system and to favour the formation of fat, that is to say, when fruit of good quality is employed; if the grapes are not sufficiently ripe, and are watery and sour, the patient may lose rather than gain in weight. Dr. Kellogg, Director of the Sanitarium Hospital and Laboratory of Hygiene at Battle Creek, Mich., is of opinion that the valuable results obtained by a fruit diet in cases of biliousness which he has observed are due to the fact that noxious germs habitually present in the alimentary canal do not thrive in fruit juices.

THE Board of Trade report for 1897 on the sight tests used in the mercantile marine shows that of the fifty-six candidates who failed in colour vision in 1896 twelve were examined on appeal, of whom five passed and seven were rejected. The number of officers already in possession of certificates who, on coming up for examination in 1896, failed to pass the sight tests, was twelve—one master, five mates, and two second mates failing in colour vision, and one mate and three second mates failing in form vision. Two of the mates who failed in colour vision appealed and passed, and one of the second mates who failed in form vision passed on re-examination. The percentage of failures to pass the colour tests was 1·02, a percentage almost exactly the same as that obtained in former years, before the introduction of the wool test. The most extraordinary point in the report is the great number of normal sighted persons who were rejected as colour blind; no less than 41·6 per cent. of those who appealed passed. This state of things, says the *British Medical Journal*, we may expect to continue until properly qualified medical men are employed as examiners, and a trustworthy test is used.

THE Königsberg and Memel district of East Prussia is known to be a district in which ophthalmia is prevalent. According to the *British Medical Journal* a careful examination of the eyes of all children in schools at Königsberg has just been carried out by twenty-seven doctors, the result showing that 32 per cent. of the children are suffering from ophthalmia, and of these more than a third from granular lids.

FROM the U.S. *Monthly Weather Review* for August we learn that the Postal Telegraph Cable Company is co-operating with the United States Time and Weather Service Company of New York in establishing throughout the city a number of handsome clocks which shall exhibit standard time, not only by the face of the clock, but by the dropping of a time-ball at noon. Under the dials are panels, which are filled up partly by special advertisements, and partly by the latest Weather Bureau reports and forecasts, which are thus made known two or three hours before they appear in the afternoon papers. The stands contain, in addition, a barometer and thermometer. The clocks have also been erected in many western cities, and the arrangement is somewhat similar to the so-called Urania Columns in Berlin, where they are said to be very popular.

THE *Indian Daily News* for October 23 contains a preliminary note on the Calcutta earthquake of June 12, by Prof. F. Omori, who has been making investigations on behalf of the Japanese Government. One peculiarity of the earthquake is that, notwithstanding its vast area of disturbance, the motion on the surface was not extremely violent. The variation of the intensity of the shock along lines across the seismic area was very gradual, and from this Prof. Omori infers that the depth of the seismic focus was not less than twenty miles. The shock appears to have been strongest at Shillong, Cheerapoonjee, and the neighbouring district. At Shillong the acceleration was calculated from overturned bodies to be about 8 feet per sec. per sec.; and this, if the period of vibration were one second, would imply a range of motion (or double amplitude) of about 5 inches. Prof. Omori believes that the origin of the earthquake was a sudden splitting asunder of the strata at a great depth, caused by an injection of steam or gas into cracks in the earth's crust. The seismic focus was situated in an east and west direction under the Garo and Khasi Hills, and to the west or north-west of the centre of the great Cachar earthquake of 1869.

A NEW form of electric seismoscope is described by Dr. G. Agamennone in the last *Bollettino* of the Italian Seismological Society, the chief merits claimed for it by its inventor being its comparatively slight cost (about thirty francs) and its great sensitiveness. In most seismoscopes the movement of a pendulum is magnified by a long pointer, whose tip just passes through a hole in a metal plate, contact with which completes an electric circuit and starts a clock previously set at twelve. In the new instrument the metal plate is not, as usual, fixed, but is connected with a second inverted pendulum, the bob of which is near the top of its supporting rod, while that of the first is near the base.

WE have received from the Imperial Observatory of Constantinople the monthly bulletins for January and February of the present year. They contain a brief meteorological summary, and continue, though apparently in less detail, the valuable lists of earthquakes issued for the years 1895 and 1896 by Dr. Agamennone. Both parts are the work of the Director, M. Salik Zéky.

AN automatic controller, intended for checking the issue of tickets in a railway booking-office, has been recently exhibited in London. The machine, which is of Belgian origin, is so arranged that each ticket is printed as issued. By two movements the clerk prints on the ticket the name of the issuing office, the destination of the passenger, the class, number, month, day, and hour of issue, and the serial number of the ticket. At the same time a record of the issue is printed on a slip of paper, which is inaccessible to the issuing clerk, and serves for making up the books at the end of the day, or other convenient opportunity. The names of the stations are arranged round the edge of a disc forming part of the machine, and in issuing a ticket, the clerk sets the name of the station required opposite a fixed mark. A downward movement of a small handle, of which there are a number corresponding to the different classes, causes an electric motor to do the necessary printing and eject the printed ticket from the machine. It is stated that each machine can be made to suit any number of stations up to 100. Where a larger number have to be dealt with, extra machines would be employed. A practical trial of the instrument, is, we understand, to be made on the Northern Railway of France in connection with the suburban service. Where large numbers of stations have to be dealt with, the inventor proposes to modify the arrangement of his machine by fitting it with keys like a typewriter, the depression of any one of which will cause the printing of a ticket for the corresponding station. In this way a possible loss of time in selecting the proper station from the rim of the disc previously referred to will be avoided. The machine, as made for twenty stations, is about 5 feet 8 inches high, and has a base 18 inches square.

THE U.S. Pilot Chart of the North Pacific Ocean for the present month contains, among other useful information, a description of the storm-warning signals employed by the various maritime nations. In looking over this list one is struck by the great success of the system of drum and cone signals introduced in this country in the year 1861 by Admiral FitzRoy, the first chief of the Meteorological Office, as these have been adopted, in either their original or somewhat modified form, in every European country in which storm signals are used except Portugal, which uses flags only; while in France, Germany and the Netherlands the cones or drums are supplemented by the use of flags or balls. They are also used in India and Japan in conjunction with balls, while flags or balls (only) are used in China and in North and South America. Prior to their introduction by Admiral FitzRoy, no signals to give notice of possible atmospherical disturbances were employed except in Holland, where there was a kind of semaphore, showing the difference of barometric readings between two places, from which one's own conclusions could be drawn as to the probability of approaching bad weather.

WITH the notable exception of M. Pénaud, most experimenters on mechanical flight have worked with fixed aeroplanes driven by a screw-propeller. A somewhat new departure has been made by Major R. F. Moore, who has selected the Indian flying-fox (*Pteropus edulis*) as his pattern on which to construct models. From his experiments, which are described in the *Aeronautical Journal*, Major Moore concludes that artificial wings can be constructed in imitation of those of the flying-fox, and that the action of the pectoral muscles can be reproduced by spiral springs of suitable strength to hold the wings expanded, the up and down motion being accomplished by means of a light electric or other motor. Two or more pairs of wings, arranged tandem fashion, are found to be better than a single pair—a result fully in accordance with the conclusions formed by other observers. Major Moore considers it quite possible to construct a machine of this type capable of raising a man.

ONE of the most remarkable papers read at the recent annual meeting of the Botanical Society of America in Toronto was on the discovery of antherozoids in *Zamia*, by Mr. H. J. Webber. The paper has been printed at length in the *Botanical Gazette*, and, after the discovery of a similar mode of fertilisation in *Cycas* and *Salisburia*, will attract great attention. In *Zamia integrifolia* Mr. Webber states that there are formed, within the pollen-tube, near its basal end, two cells, one in advance of the other. From each of the cells thus formed is developed a motile antherozoid, two to each pollen-tube. They are of a much larger size than any known in vascular cryptogams, quite visible to the naked eye, and resemble in general structure those of ferns. The mature antherozoid passes into the archegone through an opening at the apex of the pollen-tube, and the fluid in which it swims about is supplied by the watery contents of the pollen-tube. The nucleus of the antherozoid is very large, and is surrounded on all sides by a thin layer of cytoplasm. The antherozoids rotate, the cilia continuing to oscillate for a considerable period after the rotation has ceased.

THE *American Naturalist* for October contains a short memoir and a photograph of Mr. J. E. Humphrey, the botanist, whose untimely death from malarial fever while on a scientific expedition to Jamaica we recently recorded. Born in 1861, at Weymouth, Mass., he took up the study of botany from his student-days. Immediately after graduation he was appointed assistant in the botanical laboratory at Harvard, under Prof. Goodale. In 1887 he was selected as instructor in botany in the University of Indiana, and in 1888 botanist to the State Agricultural Experiment Station at Amherst, Mass. From 1892 to 1894 he studied under Prof. Strasburger at Bonn, and on his return was appointed lecturer on botany to the Johns Hopkins University at Baltimore. His best-known work was in connection with the diseases caused in plants by parasitic fungi.

A MONUMENT to the great anatomist Malpighi was unveiled on September 8, in his native town of Crevalcore.

THE last number of the *Proceedings* of the Zoological Society includes two papers which form important additions to the knowledge of the land fauna of Spitsbergen. The collections described were formed during Sir Martin Conway's expedition by Dr. J. W. Gregory. The first paper is by Mr. D. J. Scourfield. and describes the Rhizopoda, Tardigrada and Entomostra ca The Rhizopoda include twenty-one species, all of which have a wide distribution in space, but are all new to the Spitsbergen fauna. In several species, especially *Euglypha ciliata* and *Nebela collaris*, the shells are abnormal in shape, which Mr. Scourfield suggests may be due to the severity of the climate under which they live, for the specimens of *Cyclops* collected are also abnormal. Among the Tardigrada four species are described, of which one, *Echiniscus spitsbergensis*, is new. Only one Water-bear has been previously recorded from Spitsbergen; it was described by Goes in 1862 as an ally of *Macrobiotus dujardini*. Two species of Acarina are recorded, both additions to the Spitsbergen fauna, as are also the two species of Copepoda.

A SECOND paper, by Mr. David Bryce, deals with the Rotifera Previously the only records of members of this group from Spitsbergen were the mention of two indeterminable species by Goes in 1862, and the identification of one species (*Callidina alpium*) by Ehrenberg in 1869. Mr. Bryce's paper adds twenty-five more species belonging to ten genera. Two of the species (*Stephanops tenellus* and *Callidina venusta*) are new. The commonest species collected was *Callidina plicata*. The previously known species are North European in range: some of them are very rare; one *Callidina cornigera* has been previously known only by two single specimens. Bergendal has recorded eighty-two species of Rotifera from Greenland, but from a latitude about 700 miles further south than the Spitsbergen specimens were collected; and of the Greenland species only three were collected in Spitsbergen.

THE number of investigations in physiology and the allied sciences now made in the United States of America having become so numerous, it has been thought that the present means of publication need supplementing; hence it has been decided to start in January next a special journal, entitled *The American Journal of Physiology*, to meet the needs of investigators in physiology, physiological chemistry, physiological pharmacology, and certain other branches of biology. Each volume, which will be edited for the American Physiological Society by an influential board of seven doctors, will contain about five hundred pages, divided into parts or numbers, to be issued whenever enough material has been received. The promoters are not very sanguine as to the financial success of their enterprise—at any rate, for some time to come; and they, therefore, solicit the aid of all friends of learning until the journal shall be established on a self-supporting basis. The yearly subscription price for the British Isles is a guinea, and subscriptions should be sent to Dr. W. T. Porter, 688 Boylston Street, Boston, Mass., U.S.A.

WE offer our congratulations to our contemporary the *Electrical Review*, which, with its current issue, completes the twenty-fifth year of its existence. This event is celebrated in a fitting manner by the publication of a number of articles by specialists dealing with the progress made in the various departments of physical science during the time the *Electrical Review* has been in circulation. Our space is too limited to enumerate even the titles of the special contributions to this number; it must suffice for us to say that a vast amount of information is given in a very condensed form, the perusal of which is certain to interest all physicists.

DR. DONALD MACALISTER, of Cambridge, has, with the assistance of Prof. Cattell, of the University of Pennsylvania, just completed a thorough revision of the second part (Sections ix.-xv.) of his English translation of Ziegler's "Text-book of Special Pathological Anatomy." This announcement will be welcome to many students of the subject, as the book has been inaccessible for some time past. The new part will be published in the course of a few weeks by Messrs. Macmillan and Co., Ltd.

WE have received from Messrs. George Newnes, Ltd., the first part of the serial issue of Nansen's "Farthest North," which is being brought out in this popular form by arrangement with the original publishers of the work. The book will be completed in twenty fortnightly parts.—From the same publishers also comes the November number of the *Strand Magazine*, which, as usual, contains one or two articles treating of science in a popular manner. In the number before us Mr. Grant Allen writes pleasantly on "Marriage among the Clovers," and certain "Pests" are written about by Mr. Warren Cooper. Two of the pests in question, viz. "The Jack Rabbits of the United States," and "The Water Hyacinth of the St. John's River, Florida," have already received notice in the columns of NATURE (vol. liii. p. 586, and vol. lvi. p. 332).

THE additions to the Zoological Society's Gardens during the past week include a Whooper Swan (*Cygnus musicus*), a Night Heron (*Nycticorax griseus*), European, presented by Mr. W. H. St. Quintin; a Californian Quail (*Callipepla californica*) from California, presented by Mr. Walter Robertson; a Gannet (*Sula bassana*), British, presented by the Rev. G. H. Thompson; a Dwarf Chameleon (*Chamæleon pumilus*) from South Africa, presented by Mrs. Wolterbuk; a Common Seal (*Phoca vitulina*), British, deposited; a Rosy-billed Duck (*Metopiana peposaca*), three Anomalous Snakes (*Rhadinæa anomala*) from South America,, two Golden Plovers (*Charadrius pluvialis*), two Dunlins (*Tringa alpina*), four Common Gulls (*Larus canus*), British, purchased; three Himalayan Monauls (*Lophophorus impeyanus*), bred in the Gardens.